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Status of implementation of the information and communications technology strategy for the United Nations

Report of the Secretary-General

Summary

The information and communications technology (ICT) strategy (A/69/517) is a five-year road map designed to ensure that ICT supports the core work of the United Nations in the areas of peace and security, human rights, international law, humanitarian affairs and sustainable development. With solid progress made to date, the emphasis going forward will be on the digital agenda; innovative solutions and analytics; mainstreaming Umoja; continuing efforts to harmonize applications; strengthening information security capabilities as threats continue to grow; and global sourcing and global asset management initiatives. The goal of the strategy to better leverage ICT as a strategic enabler is fundamental to the Secretary-General's management reforms (see A/72/492 and A/72/492/Add.2). The present report provides a comprehensive update on the status of key initiatives and commitments contained in the strategy and includes an update on the status of implementation of the recommendations of the Board of Auditors contained in its report on the implementation of the strategy (A/73/160).

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I. Introduction

1. The information and communications technology (ICT) strategy (A/69/517), endorsed by the General Assembly in its resolution 69/262, in 2014, established a common vision for ICT delivery in the United Nations through modernization, transformation and innovation, founded on a framework of improved governance and an effective balance between central leadership and operational freedom.

2. The five-year plan to simplify and optimize technology offerings as a precursor to transforming the way in which the United Nations uses technology, from a utility to a strategic enabler, was established:

(a) To overcome silos by creating an environment in which interoperability allows information to flow effectively throughout the Organization, facilitating coherent and integrated mandate implementation;

(b) To ensure that ICT is leveraged as a critical operational and strategic enabler for the work of the United Nations;

(c) To protect the United Nations from the rapidly escalating cybersecurity threats to mandate delivery and to the Organization itself.

3. Since the endorsement of the strategy, the modernization and transformation of the ICT landscape across the Secretariat have created an environment conducive to innovation.

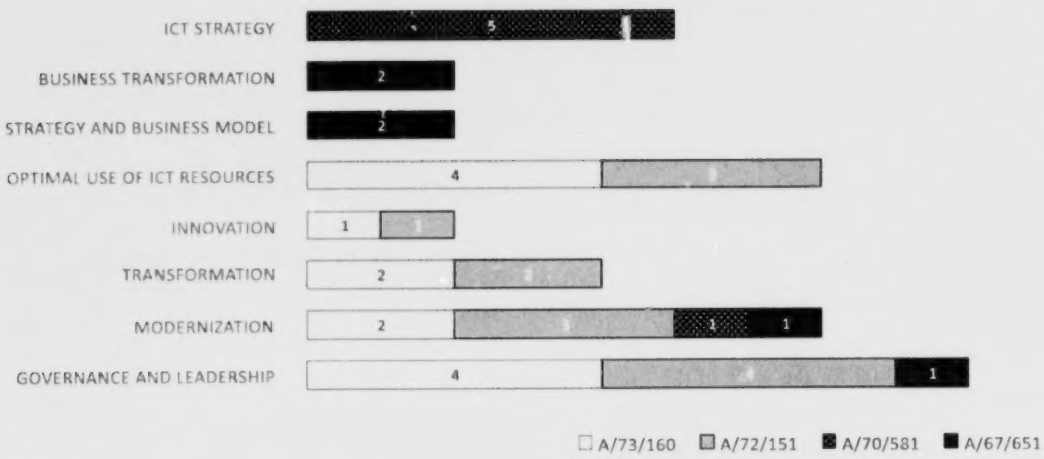
II. Status of implementation of the recommendations of the Board of Auditors

4. During the reporting period, the implementation of the ICT strategy was audited by the Board of Auditors. Its first annual progress report (A/72/151) was issued in July 2017 and its second (A/73/160) in July 2018.

5. In its annual audit of ICT in the Secretariat, the Board identified a lack of coherence in ICT globally, identifying it as an impediment to the implementation of the ICT strategy.

6. The Board made 37 recommendations from its first audit, in 2012 (see A/67/651), to the year ended 31 December 2017, 36 of which were accepted and 1 partially accepted by the Administration. Of the 37 recommendations, 10 were assessed by the Board to be fully implemented and 1 was overtaken by events. A total of 26 outstanding recommendations are linked to the ongoing implementation of the ICT strategy and are under implementation. In its second annual progress report, the Board added 13 recommendations covering several key ICT areas, as shown in the figure below.

Status of open recommendations of the Board of Auditors



7. The Office of Information and Communications Technology is working with offices, departments and field missions to continue the progress made in 2018, during which 27 per cent of pending recommendations were implemented. It is expected that, while some of the recommendations will be addressed when the ICT strategy has been fully implemented, progress can be made in implementing many of the existing recommendations beforehand.

III. Overview of implementation of the information and communications technology strategy

8. The improvements made to the ICT landscape throughout the Secretariat in the first four years of implementation of the strategy indicate that the ultimate long-term goal of comprehensive, reliable and efficient ICT in the United Nations is achievable.

9. The ICT infrastructure and architecture are running more smoothly, and improvements have been noted in operations and service delivery. Many new ICT policies have been put in place. Critical support has been delivered for the deployment of the enterprise resource planning system, Umoja, and enterprise systems are more secure.

10. The number of legacy applications has been reduced by more than half. In addition, the deployment to the entire Secretariat of Unite Mail and a suite of Microsoft Office 365 tools, including Skype for Business and OneDrive, will facilitate the decommissioning of IBM Notes applications.

11. The global wide area network, "One United Nations" network, facilitates a centralized monitoring function, supports the ICT infrastructure and enables standardization. The number of data centres, servers, websites and networks, and costs and resources, have all been reduced. The Unite Service Desk offers round-the-clock support for a growing number of enterprise applications.

12. The digital agenda focuses on innovative solutions and analytics, frontier technologies and cybersecurity to address the decision of the General Assembly to strengthen the use of ICT to facilitate the work of the United Nations in the areas of

peace and security, human rights, the rule of law, social and economic development and humanitarian affairs. In this regard, through collaboration with the offices, departments and field missions responsible for these mandate areas, significant progress has been made in the strategic use of technology, as well as in the provision of advanced analytics solutions.

13. The Department of Management undertook projects in collaboration with the United Nations Human Settlements Programme (UN-Habitat) related to smart cities, which use various types of electronic data collection sensors to supply information used to manage assets and resources efficiently. It also collaborated with the Department of Field Support and the Department of Peacekeeping Operations to deploy to field operations critical systems that support the management of contingent-owned equipment, fuel and rations.

14. Innovative use of technology is progressing through the implementation of awareness-raising programmes, crowdsourcing solutions and predictive modelling applied to the substantive work of the Organization.

IV. Modernization and transformation: update on key initiatives

A. Enterprise support: Umoja

15. As part of Umoja mainstreaming efforts, the Office of Information and Communications Technology continues to work in close collaboration with the project team.

16. In its resolution 72/262 C, the General Assembly endorsed the conclusions and recommendations of the Advisory Committee on Administrative and Budgetary Questions (see A/72/7/Add.51), including the expectation of the Advisory Committee that the Secretary-General would provide further information in his next report regarding the measures taken to ensure the protection and confidentiality of the data contained in the Umoja system.

17. The Office has therefore defined generic information security control objectives, provided general guidance and set institutional policy in protecting personal and other sensitive data in Umoja systems. It is focused on strengthening the following areas:

(a) Infrastructure-related aspects such as the provision of secure networking and hosting and the "Umoja access layer", which provides a secure virtual environment to separate users' devices from the application;

(b) Unite Identity credentials for authentication;

(c) Umoja-specific vulnerability reduction through assessments using specialized tools;

(d) Follow-up on reported or suspected vulnerabilities and incidents.

18. These efforts are complemented by those of the Umoja project team, which supports the user access provisioning process. That process, through which enterprise roles and workflows are provisioned and deprovisioned for Umoja functional end users, is undertaken in collaboration with functional process experts who define the business functions and the level of access required, with the aim of establishing the most efficient and secure model for the provision of access and role assignment.

19. The Umoja team also seeks to proactively prevent the inappropriate combination of enterprise roles, to support the appropriate segregation of duties in the Organization.

B. Shared platforms: Enterprise Application Centres

20. The ICT strategy proposed an enterprise delivery framework that included enterprise application centres in New York, Vienna and Bangkok. The Enterprise Application Centres continue to coordinate and lead the global development and support of legacy applications, which resulted in the reduction of the number of applications from 2,340 in July 2014 to 1,140 in July 2018.

21. The reduction was achieved through the consolidation of functionalities with existing enterprise applications and standardized platform-based solutions such as iNeed, Umoja, Inspira, Unite Docs, Unite Connections and standard field systems, as well as through the decommissioning and retirement of obsolete systems. The Enterprise Application Centres continue to reduce the number of legacy applications through collaborative efforts with departmental and local ICT entities, using established governance bodies and standard technical procedures.

22. The Office of Information and Communications Technology continues to deliver administrative support systems that complement Umoja. The Unite Docs and Unite Connections platforms have replaced hundreds of local document repositories, databases and shared drives with standard, enterprise-class solutions. Many legacy systems have been retired and moved to the two more modern and secure platforms. The Office continues to work closely with the Archives and Records Management Section to facilitate and improve records management. The Office will also continue to expand the use of Office 365 applications in support of content management and collaboration activities.

23. The Enterprise Application Centre in Bangkok has developed and operates several enterprise applications that support the programmatic work of the Organization. These include:

- iLearn: an online training platform, mostly for public users, to support the programmatic mandates of the United Nations agencies, funds and programmes. More than half a million people in 190 countries have used the platform since it was deployed in 2016.
- Sendai Framework monitoring to support the United Nations International Strategy for Disaster Reduction: the framework encompasses global targets and priorities for actions to prevent new and reduce existing disaster risks (understanding disaster risk; strengthening disaster risk governance to manage disaster risk; investing in disaster reduction for resilience; enhancing disaster preparedness for effective response) and to "build back better" in recovery, rehabilitation and reconstruction.
- Phase 1 of the project was completed in February 2018 and phase 2 in July 2018. The Centre is currently working with the United Nations Office for Disaster Risk Reduction on phase 3.
- Knowledge portal on the Sustainable Development Goals for the Economic and Social Commission for Asia and the Pacific: a one-stop online service providing access to tools, knowledge products, expertise, advice and opportunities for peer learning and regional South-South cooperation through thematic areas, covering a multitude of topics related to the Sustainable Development Goals.

C. Information security and disaster recovery

24. The Secretariat continues to maintain and refine the Organization's information security programme on the basis of the main elements elaborated in its information

security road map. As part of its efforts to coordinate and promote inter-agency collaboration in this field, the Office of Information and Communications Technology is currently chairing the Information Security Special Interest Group and hosted the annual symposium.

25. The threat level is intensifying, with evidence of multiple sustained cyberattack campaigns against the United Nations, some of which have led to significant breaches. In addition to numerous generic attacks and probes of the Organization's ICT systems, targeted and highly customized attacks have been detected and largely mitigated.

26. The scale and complexity of these threats and attacks continue to grow. On average, each week more than 35,000 emails containing malicious links and/or attachments are blocked globally; more than 500 advanced targeted email-based threats containing previously unknown malicious links and/or attachments are blocked globally; and more than 2.5 million malicious Internet connections are blocked globally.

27. The General Assembly, by its resolution 72/262 C, stressed the need for assurances regarding the Organization's data. The cloud computing initiative has also provided an opportunity to deploy additional protection and authentication mechanisms and the potential for significantly improved central logging and analysis of security-related information. However, the initiative also requires modifications to the information security framework, the enhancement of technical skills for cloud-based operations support and security testing and additional capacity to provide guidance to application developers to deploy cloud-based solutions with an adequate level of security controls to meet requirements for cloud-based hosting.

28. The Regional Technology Centres, in collaboration with the global information security function, continue to implement pending initiatives of the 10-point action plan, such as network segmentation, the ongoing review of user access permissions and the review of minimum-security requirements for websites. All major ICT systems and resources that undergo major changes are subject to an information security assessment prior to release in production.

29. A Secretariat-wide information security global incident response team is being established to harmonize information security incident response plans and related procedures, institute global information security incident reporting and allow for the global sharing of lessons learned. In addition, vulnerability management processes are being institutionalized in order to establish a regional process of maintaining awareness and distributing information about published technical vulnerabilities.

30. The workload related to performing assessments of systems and applications and responding to reported vulnerabilities has significantly increased, with some assessments needing to be outsourced to third parties. In the first half of 2018, the Office performed 28 information security assessments and responded to more than 50 vulnerabilities.

31. With the intensifying cyberthreats, as detailed above, it is critical that the United Nations ensure a consistent and harmonized approach to information security across the entire Secretariat. This is proving increasingly challenging in the current context, with information security becoming an important dimension of the work of the United Nations. The span and scale of responsibility in this area have grown significantly, primarily as a result of the escalating information cybersecurity threat landscape. Therefore, an urgent and commensurate change in the handling by the United Nations of cybersecurity is required, and additional resource requirements for cybersecurity may be presented to the General Assembly as appropriate.

32. Owing to the concentration of field mission activity in Africa, it is proposed that an increase in capacity be focused on and integrated with the existing regional capacity in the region in order to provide dedicated resources for vulnerability management, threat management, monitoring and security events management, incident response, information security architecture, information security assessments and certifications, information security policy development and outreach and awareness.

D. Enterprise Data Centres

33. The Office of Information and Communications Technology, together with the Department of Field Support, developed a cloud computing strategy in early 2018. Cloud computing allows for on-demand and pay-per-use delivery of computing resources by using a network of remote servers hosted on the Internet to store, manage and process data.

34. Cloud computing will enable the Organization to become more responsive and agile to business demands, scale services seamlessly, show cost transparency, reduce risk and shift ICT staff to high-value tasks such as information security and enterprise architecture.

35. A hybrid model of on-premise (private cloud) and third-party (public cloud) services has been selected. Such a model allows the workload to move between public and private clouds as computing needs and costs change and ensures that the United Nations capitalizes on cloud computing benefits, while preserving specialized applications critical to the Organization's work.

36. The implementation will be phased over time across cloud maturity levels and the readiness of personnel and applications. Project governance has been established in accordance with the United Nations project management framework, including appropriate oversight and risk management. Two third-party vendors have been selected.

37. Teams consisting of staff from the Office and the Department of Field Support have been formed in key thematic areas to lead the development of the solution architecture model with vendors. Pilot projects to be implemented by the end of 2019 include the migration of over 40 applications and the secondary data-centre capability into the cloud, allowing strengthened security, resilience and disaster recovery in multiple locations in a cost-neutral manner.

E. Digital workplace

38. To date, over 55,000 users have been migrated to Office 365 throughout the Secretariat and peacekeeping missions in collaboration with the Department of Field Support. The implementation of additional tools to increase effective communication, collaboration and networking is in progress.

39. Furthermore, a mobile management solution that allows information technology administrators to control, secure and enforce policies on smartphones, tablets and other end-point devices is being piloted. A bring-your-own-device programme will be established, allowing staff to use personal mobile devices to access organizational data and applications.

F. Unite Service Desk

40. The Unite Service Desk provides round-the-clock service from Bangkok, Nairobi, Geneva, New York and Brindisi, Italy. The number of global enterprise applications and services supported by the Unite Service Desk had increased to 36 as at June 2018. In addition, the Unite Service Desk further consolidated activities, and its continued focus on achieving operational efficiencies resulted in significant benefits, including:

(a) A decrease in the average resolution time by more than half, from 105 minutes to 48 minutes, and in the average lifetime of a service request from five days to four;

(b) An average customer satisfaction rate of 88 per cent.

G. Regional Technology Centres

41. The four Regional Technology Centres, established in 2015, ensure that governance, standards, policies and procedures, as well as information security and architecture requirements, are met within each region and that user experience remains consistent across the regions.

Harmonization of ICT service delivery

42. The Regional Technology Centres continue to consolidate ICT infrastructure and operations by working collaboratively with entities that are not managed by the Secretariat but have offices housed in Secretariat campuses. In New York, a review of applicable ICT policy controls was conducted, and recommendations are being implemented to achieve full compliance. The other Regional Technology Centres will replicate that approach.

43. Further service delivery improvements will be achieved by harmonizing and improving ICT service delivery and ensuring a consistent user experience across the Secretariat. An effort is under way to create a unified global ICT service catalogue and provide quarterly service provider performance reports, which will enable a service-level comparison and improvements across entities.

44. Global monitoring of infrastructure managed in New York is being refined in collaboration with the Department of Field Support, and plans are under way to incorporate offices away from Headquarters and regional commissions into a single platform. Furthermore, plans are under way to establish and institutionalize service management processes for design, transition, operation and continuous improvement across the network component life cycle.

45. The Department of Field Support issued its field technology framework, which sets the vision for the development of ICT in support of United Nations peace operations over the next five years (2018–2023) and fully aligns field ICT operations with the ICT strategy. The Regional Technology Centres complement the framework.

46. The framework will be reviewed annually, with progress reported as part of the ICT strategy implementation. The framework has been developed in the context of continual environmental changes faced by field missions, the increase in physical security threats, the expanding role of technology in force protection and situational awareness and the ever-increasing complexity of mandates and operating environments.

47. The framework identified two operational objectives: to optimize current core ICT operations and to reposition field ICT to become the effective delivery vehicle

for cross-cutting new and innovative technology solutions in support of mandate implementation.

H. Better solutions: global engineering and conferencing

48. A global event-booking management system, a tool to be used by all Secretariat entities and peacekeeping missions for videoconference coordination and support, has been rolled out in missions in collaboration with the Department of Field Support. Integration of Secretariat entities is planned by the end of 2018.

49. Serious issues with ageing videoconferencing equipment make these critical systems prone to ongoing failure. A videoconferencing infrastructure study of all Secretariat sites was completed in 2017. Based on the findings, investment is needed to refresh ageing equipment. Resource requirements may be proposed in the context of the appropriate budget.

50. By the end of 2018, a global universal bridge solution, offering a follow-the-sun support model, will have been rolled out. Such a solution will allow the users to internally or externally connect to United Nations-hosted videoconferences using a standard room-based videoconference unit, a web browser, a mobile device, the telephone system or a combination thereof. The integration with Office 365 will be piloted and rolled out in 2019, following a successful proof of concept.

I. Business intelligence and analytics

51. The need for improved decision support and transparency in decision-making continues to drive demand for analytics and business intelligence solutions. Effective analytics is underpinned by effective data governance; the Office continues to provide technology solutions for the global community of business intelligence practitioners.

52. The Office of Information and Communications Technology provided technology solutions and data services for the development of business intelligence reports and dashboards across the functional areas of finance, human resources and travel, providing a more sustainable and better-governed use of Umoja data for reporting purposes.

53. A field business intelligence road map is being implemented to empower users in local business units to create their own dashboards and analytics products, thus simplifying and decentralizing decision-making. Some 300 users in the field have been trained on producing business intelligence products, and dashboards have been produced and shared, with the numbers of active users growing by 15 per cent each month.

54. A situational awareness technology platform is being piloted in the United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic, bringing together a suite of standardized technology solutions to enable the management of the information cycle within field missions to enable both crisis and medium-term decision-making. Information security has been strengthened through the launch of a compliance website and a training and certification track to develop the skills required in field operations to support effective operational cybersecurity.

V. Innovation: leveraging technology innovation

55. The second phase of the ICT strategy focuses on the use of technology innovation to support the substantive work of the United Nations. The strategy,

endorsed by the General Assembly, has proved correct in its recommendations on how technology and innovation should feature in the work of the Organization, stressing that it is inevitable that innovation will play an important role in the strategy to better assist in the delivery of the United Nations mandates and in supporting the post-2015 development agenda and that the Organization should expect ICT to be open to new advances in, and development of, technology to support the substantive work of the United Nations.

56. As highlighted in the previous report, the growth of the Internet, increased global connectivity and new technological developments offer the United Nations unprecedented opportunities to engage technology and data to support its mission and to better reach those that it serves. Technology innovation will be critical in empowering work in such areas as sustainable development, peace and security, human rights, international law and humanitarian affairs.

57. The General Assembly had decided in its previous resolutions that the Chief Information Technology Officer was to lead all ICT activities in the Secretariat and that, as the strategy transitioned to the innovation phase, ICT programmes supporting substantive work should become more harmonized. Enhanced coordination and coherence within the United Nations system on innovation and technology are facilitated by the Assembly's decision, by its resolution 72/262 C, to consolidate ICT and are aligned with the overall ICT strategy.

58. In response to the request of the General Assembly and the Advisory Committee for further information on the management of ICT solutions that support the substantive work of the Organization, the Office of Information and Communications Technology is increasing its efforts to support Member States in their use of data, frontier technologies and innovation. In addition, the Office is providing offices and departments of the Secretariat with tools to leverage existing and emerging technologies to increase their efficiency and effectiveness in providing services and delivering on the Organization's mandates. These initiatives are undertaken even as growing and increasingly sophisticated cybersecurity challenges are countered. In line with the overall ICT strategy, in particular the second phase of its implementation related to technology innovation, the Office has embarked on the initiatives outlined in the following sections. It is hoped that Member States will continue to support the Office's efforts to coordinate, manage and lead the efforts of the United Nations system in this regard and, in so doing, leverage the power of technology innovation in the pursuit of the Organization's objectives, particularly the implementation of the 2030 Agenda for Sustainable Development.

A. Leveraging emerging technologies to build innovative tools and solutions

59. Recognizing the potential of harnessing new technologies such as artificial intelligence, machine learning and blockchain to find solutions that can improve efficiency, effectiveness and mandate delivery, the Office of Information and Communications Technology has created a broad suite of innovative technology solutions for use by the United Nations system and Member States.

60. To enhance the cybersecurity of the United Nations system, including protection against cyberattacks, the Office has launched the Digital Blue Helmets programme, which provides the United Nations system with a common platform for rapid information exchange and better coordination of protective and mitigating measures against information technology security incidents that have an increasing impact on the mandates and programmatic work of the Organization.

61. The Office has also provided similar technological support to Member States in developing useful innovations to support the work of the United Nations in various areas. The Enterprise Application Centre in Vienna, working in partnership with the United Nations Office on Drugs and Crime, has helped to build sustainable and affordable information technology solutions to support Member States in fighting organized crime, including transnational organized crime, illicit drug and other forms of trafficking, terrorism and corruption. In particular, the "goPortfolio" software solutions are offered directly to many Member States, so that their agencies and national administrations can better gather, analyse and disseminate data and information, in order to facilitate their formulation of policies and strategies.

62. Demand for the United Nations to provide cutting-edge yet neutral and secure technology innovations that address global challenges, particularly in the implementation of the 2030 Agenda, will only increase. The Office's Global Services Division aims to respond accordingly, playing an active role in catalysing partnerships and embracing technology innovation.

B. Technological innovations to address global challenges

63. In order to create an enabling environment to develop useful technological tools with which to address global issues, the Office of Information and Communications Technology has begun working with interested Member States on the establishment of United Nations Technology Innovation Labs, which will use cutting-edge frontier technologies to pioneer open-source technological solutions to global humanitarian, sustainable development, climate change and peace and security challenges. They will work as incubators and accelerators to foster collaborative problem-solving between the United Nations system, the private and public sectors, academia and civil society, with solutions that can then be scaled up and implemented to address global challenges. The programme includes advisory support and guidance through hands-on workshops, immersion learning, incubation for projects, crowdsourcing and partnerships. Collectively, the network of Technology Innovation Labs will help to build a portfolio of technology solutions and support the sharing of innovative technologies to address global issues, thus supporting the delivery of United Nations mandates.

C. Catalysing new partnerships in innovation

64. Robust and innovative partnerships are critical if the United Nations is to effectively leverage emerging technology tools to deliver on its mandates. The Technology Facilitation Mechanism, mandated by the 2030 Agenda and the Addis Ababa Action Agenda, and its annual collaborative multi-stakeholder forum on science, technology and innovation for the Sustainable Development Goals are important tools in this regard and are actively supported and facilitated by the Office of Information and Communications Technology.

65. In line with the emphasis on partnerships, the Office has initiated a systematic and structured approach to partnerships that is active and forward-looking. It has established strong technology partnerships with private and public sector organizations, as well as with academia and individuals in relevant fields. Current initiatives being developed by the Office include working with private sector companies to enhance their ethical sourcing capacity through frontier technology tools, as well as developing open-source solutions on digital identity through a consortium partnership.

66. The Unite Ideas platform was also established in 2018 as a global platform to crowdsource practical technology solutions for the implementation of the 2030 Agenda. The platform has proved extremely popular, with challenges posted in the past year on such topics as armed conflict, internal displacement and cybersecurity. Many of the past Unite Ideas challenges have resulted in practical and usable solutions. Moreover, to increase awareness of emerging technologies and innovation techniques, the Office organizes "Technovation talks", briefings that are open to staff and delegates of Member States. Since 2016, 18 events have been held in English and Spanish on such subjects as blockchain, cybersecurity and virtual and augmented reality. The Office has also published primers for staff and delegates that provide an easily accessible introduction to popular frontier technology topics.

VI. Optimization: global sourcing and global assets management

67. During the fourth year of the strategy's implementation, the Office continued to collaborate with the Information and Communications Technology Division of the Department of Field Support, other Secretariat offices and the Procurement Division in efforts to accomplish global sourcing and contracts management, including the following:

(a) The procurement process for the ICT global system contract for the provision of fully managed services such as email, storage, satellite network management, service desk, task order services and integrated workforce services is currently being finalized; technical and financial evaluation is complete. It is expected that a contract will be awarded in the third quarter of 2018;

(b) An application service global system contract is being established through three delivery models, consisting of integrated workforce services, a retainer agreement and task orders. The Office of Information and Communications Technology and the Information and Communications Technology Division will benefit from this agreement in multiple locations. The statement of work is currently under review by representatives of the Procurement Division.

68. The acquisition of ICT desktop equipment has been decentralized at Headquarters. Offices and departments can purchase equipment directly from the vendor (Lenovo) by using Umoja and selecting equipment from the approved United Nations global products catalogue. The catalogue is updated every three months.

69. In accordance with the administrative instruction on the disposal of computer equipment at United Nations Headquarters (ST/AI/2001/4), departments and offices are responsible for the disposal of computer equipment at Headquarters. All desktop equipment must have its hard drive wiped clean of any data before it is donated or disposed of, and server hard drives and damaged hard drives be physically destroyed through the approved United Nations vendor for security purposes. Since the Umoja implementation, each department and office is responsible for creating a notification number in Umoja and for removing the authorization group before transferring the disposal equipment to the Office.

VII. Conclusion

70. The ICT strategy is designed to deliver a unified global provision of ICT that facilitates the core work of the United Nations. The strategy is based on the concepts of simplification, modernization, transformation and innovation, founded on a framework of improved governance, strong leadership and optimal use of ICT resources.

71. Solid progress has been made in the first four years of the strategy's implementation in transforming and modernizing the technology landscape, optimizing resources, establishing strong governance and creating a stepping stone for innovation at the United Nations.

72. In its resolution 72/266 B, the General Assembly approved the consolidation of the existing Office of Information and Communications Technology in the Department of Management and the Information and Communications Technology Division in the Department of Field Support into a new Office of Information and Communications Technology, effective 1 January 2019. The new office will report to both the Under-Secretary-General for Management Strategy, Policy and Compliance and the Under-Secretary-General for Operational Support. This rationalization of structures at Headquarters will allow a more coherent approach to the implementation of the ICT strategy and, in line with the broader shift in management paradigm, will allow for a greater consistency of approach across the Secretariat while ensuring that the myriad activities performed by organizational entities across the Secretariat are effectively supported through ICT solutions that meet their respective requirements.

73. The Office of Information and Communications Technology and the Information and Communications Technology Division are working in close collaboration on reform implementation and a change management plan for the next five years. The consolidation will bring about integrated ICT delivery and result in improved customer service. The Secretary-General will report on progress achieved in the implementation of the ICT strategy in his progress report to the General Assembly at its seventy-fourth session. As requested by the Assembly in its resolution 72/266 B, a report on the implementation of the management reform, including on the functioning of the new Office of Information and Communications Technology, will be submitted for consideration by the Assembly at its seventy-fifth session.

VIII. Actions to be taken

74. The General Assembly is requested:

(a) To take note of the status of the ongoing implementation of the ICT strategy;

(b) To note that additional requirements for information security, videoconferencing and other conference-related equipment will be further assessed and reported to the General Assembly as appropriate.

Annex I

Overview of information and communications technology resources for the bienniums 2014–2015, 2016–2017 and 2018–2019, including resources for Umoja

(Millions of United States dollars)

Biennium	*Regular budget, including special political missions*[a]	*Extrabudgetary*[a]	*Support account*[b]	*Peacekeeping missions*[c]	*Total*	*Umoja*	*Total, including Umoja*	*Annual, excluding Umoja*	*Annual, including Umoja*
2014–2015	366.4	183.0	62.8	942.5	1 554.7	111.1	1 665.8	777.3	832.9
2016–2017	392.5	184.9	57.7	851.9	1 487.0	99.0	1 586.0	743.5	793.0
2018–2019	392.5	181.5	52.8	617.8	1 376.4	77.6	1 454.0	688.2	727.0
Total ICT resources, 2014–2019	**1 151.4**	**549.4**	**173.3**	**2 412.2**	**4 418.1**	**287.7**	**4 705.8**	**2 209.1**	**2 352.9**
Total budgets for 2018–2019[d]	**5 405.1**	**21 313.4**	**601.5**	**12 952.4**	**40 272.5**	**77.6**	**40 350.1**		
Percentage of ICT resources as part of total budget	7.3	0.9	8.9	4.8	3.4	100.0	3.6		

[a] The analysis of staff costs approved for the biennium 2016–2017 and proposed for 2018–2019 captures posts in the Information and Telecommunication Technology Network, which includes the media technology, telecommunications technology and information management systems and technology job family. The analysis of non-post resources comprises non-post commitment items with regard to information technology and communications from the Umoja system. Totals do not include one-time Umoja project resources. For the regular budget, the amount for 2014–2015 reflects actual expenditure. Owing to the unavailability of information, extrabudgetary expenditure for 2014–2015 is an approximation of 2016–2017 expenditure, where applicable.

[b] Calculations for staff costs with regard to the support account are based on the standard cost applicable for the support account for peacekeeping operations and count of actual authorized posts and general temporary assistance positions in the Information and Communications Technology Division of the Department of Field Support, the Office of Information and Communications Technology, the Financial Information Operations Service of the Office of Programme Planning, Budget and Accounts and the Human Resources Information Systems Section of the Office of Human Resources Management of the Department of Management for the reporting periods.

[c] See A/C.5/68/26, A/C.5/69/24, A/C.5/70/24 and A/C.5/71/24 for amounts under communications and information technology classes of expenditure. See A/71/400, annex I, for the calculations for the staff costs with regard to peacekeeping missions for the 2014/15 period. For 2016/17 and 2017/18 periods, the staff costs with regard to peacekeeping missions are based on standard costs in peacekeeping mission budgets for staff in the ICT organizational units.

[d] See A/72/6 (Introduction) and A/C.5/71/24. For peacekeeping missions, the total budget for the biennium 2018–2019 is estimated as double the approved amount for the 2017/18 period.

Annex II

Status of projects under the information and communications technology strategy: project assurance and performance management

A. Overview of project status

Number of projects	*Status*
20	Strategic projects reported in the first progress report (A/70/364)
-7	Projects completed and moved to ongoing operations, second progress report (A/71/400)
13	Remaining strategic projects, second progress report (A/71/400)
-5	Projects completed and moved to ongoing operations, third progress report (A/72/755/Rev.1)
8	Remaining strategic projects, third progress report (A/72/755/Rev.1)
-1	Projects completed and moved to ongoing operations, fourth progress report (A/73/384)
7	Remaining strategic projects, fourth progress report (A/73/384)

Note: Of the eight remaining projects reported in the previous progress report, the enterprise business intelligence and analytics project was successfully completed in 2018 and moved to ongoing operations.

B. Projects modified on the basis of change requests

A change request was approved for the project listed below. It was made to adjust the timeline and to close the project.

Project name	*Change request description*
Enterprise business intelligence and analytics	Modified the project plan by closing phase 2 and adding phase 3. Carried forward two remaining activities from phase 2 to phase 3. Modified the project finish date from 31 December 2016 to 28 February 2018. Project was completed on 28 February 2018

C. Ongoing projects

Project name	*Description*	*Start date*	*Finish date*	*Percentage complete*	*Key milestones*
Enterprise Unite Service Desk/ consolidation	Establish a 24/7 global support centre for enterprise applications, including Umoja, Inspira, Unite Docs, Unite Connections, iNeed, Earthmed, etc. Consolidate help desks across the Organization	1 January 2015	31 December 2018	93%	Fully resourced and staffed Enterprise Service Desk (finish date: 30/09/15; complete) Technology roll-out (finish date: 30/09/15; complete) Establish funding model (finish date: 31/12/15; complete) Consolidation of help desks (finish date: 31/12/18) — support for Department of Field Support personnel and Headquarters has been consolidated. Tier 1 (field) was put on hold, based on the need to review the new model in the light of the reform
Enterprise Network Operations Centre	Establish an enterprise-level operations centre which will be globally responsible for detecting changes of state for information technology (IT) assets (event management) and determining the course of action required to return affected IT services to an acceptable level for the IT users as quickly as possible (incident management)	11 May 2015	31 December 2018	86%	Phase 1: monitoring of New York infrastructure to global Enterprise Network Operations Centre (finish date: 31/12/15; complete) Phase 2: consolidation of global Enterprise Network Operations Centre and Network Control Centre of the Information and Communications Technology Division into one enterprise monitoring solution (finish date: 31/08/17; complete) Phase 3: move monitoring of other Regional Technology Centres to enterprise monitoring (finish date: 31/12/18; in progress)
Umoja mainstreaming	Transfer responsibilities from the project to corresponding entities within the Secretariat	1 December 2013	31 December 2019	74%	Infrastructure (finish date: 07/03/19; in progress) Security (finish date: 31/12/19; in progress) Business intelligence (finish date: 31/12/18; in progress)

Project name	*Description*	*Start date*	*Finish date*	*Percentage complete*	*Key milestones*
					Applications (finish date: 31/12/19; in progress)
					Production support (finish date: 31/12/18; in progress)
					Administration (project management, contracts, human resources, budget) (finish date: 31/12/19; in progress)
Global sourcing strategy	Take inventory of all ICT contracts and assets and identify global sourcing opportunities	1 February 2016	14 February 2019	46%	Phase 1: requirements and development of requests for proposals (finish date: 31/12/16)
					– Voice and data (complete)
					– Geographic information system (complete)
					– ICT services (complete)
					– Applications (complete)
					Phase 2: solicitation and contract award for requests for proposals (finish date: 14/02/19; in progress)
Disaster recovery	Develop a Secretariat-wide disaster recovery plan to ensure that critical ICT systems can be effectively failed over in case of an emergency	1 May 2013	31 December 2016 (Phase 1)	100%	Review list of Secretariat-wide critical applications (complete)
					Revise disaster recovery estimates for critical applications (complete)
					Resubmit proposal for disaster recovery for Senior Emergency Policy Team approval (complete)
					Develop individual disaster recovery plans for critical applications (finish date: 31/12/2016; complete)
		17 October 2017	28 June 2019 (Phase 2)	25%	Phase 2: disaster recovery exercises (finish date: 28/06/19; in progress)

Project name	*Description*	*Start date*	*Finish date*	*Percentage complete*	*Key milestones*
Application consolidation/ rationalization	Reduce the cost, complexity and redundancy of the applications portfolio and achieve greater alignment with organizational objectives and technology architecture. This project is the essential part of the application management strategy, which has been executed by the established Enterprise Application Centres. The number of United Nations applications to be reduced from 2,340, in July 2014, to 1,000 by 2020 through the provision of Organization-wide systems, instead of local application development	1 June 2014	31 December 2020	70%	Phase 1: develop methodology and application road maps; establish global application portfolio (complete) Phase 2: decommissioning of scheduled enterprise resource planning-related systems, launching Lotus Notes application migration and executing application rationalization road maps (finish date: 31/12/17; complete) Phase 3: reduce number of United Nations applications to 1,000 (finish date: 31/12/20; in progress)
Website consolidation/ rationalization	Increase the efficiency of the websites operations, web design and security and achieve economies of scale through strategic changes in the current operating model	2 January 2014	31 December 2020	58%	Phase 1: Develop website technology and plan (complete) Develop United Nations website consolidation solution (complete) Harmonization levels 1 and 2: address critical websites (complete) Harmonization level 3: identify and remediate websites (complete) Harmonization level 4: identify and remediate (see phase 2) Phase 2 (finish date: 31/12/20): Establish project governance; assess websites for regulatory requirements, business, technology and financial; identify issues, overlaps, improvement opportunities; develop and execute road maps for meeting compliance requirements and realize improvement opportunities for website harmonization and consolidation on common technology platform

Project name	*Description*	*Start date*	*Finish date*	*Percentage complete*	*Key milestones*
Enterprise business intelligence and analytics	Establish business intelligence and analytics processes, reports, dashboards, standardization and governance for enterprise applications. Consolidate and defragment business warehouse environments	1 January 2016	28 February 2018	100%	Develop strategy and set up Data Governance Council (complete) Define roles/responsibilities, build capacity, procure SAP HANA licences and install new business intelligence schemas (complete) Consolidate data for ICT skills assessment (complete) Develop data governance framework and information asset registry (complete) Develop pilot projects. Build capacity for Umoja business intelligence and analytics (finish date: 28/02/18; complete)
Network and infrastructure upgrade (MPLS) — "One United Nations" network	Upgrade the wide area network to accommodate existing and new enterprise applications	10 May 2013	31 December 2017	100%	Complete cluster 4 connectivity (finish date: 30/09/15; complete) Establish funding model (finish date: 31/10/15; complete) Continue to add Secretariat entities (finish date: 31/12/17; complete)

Annex III

Status of implementation of the recommendations of the Board of Auditors contained in its second annual progress report on the implementation of the information and communications technology strategy (A/73/160)

I. Implementation of the recommendations contained in the second annual progress report of the Board of Auditors (A/73/160)

The following recently issued recommendations are under implementation:

Paragraph	*Target date*	*Comments*
25	31/12/2019	In accordance with a previous recommendation of the Board, the ICT strategy component of the senior managers' compacts has been strengthened and detailed. The Secretariat will continue efforts to ensure that offices and departments follow established processes related to governance
26	31/12/2019	An ICT performance management framework has been developed
41	Ongoing	The Secretariat had established the ICT Policy Committee with representatives from offices, departments, offices away from Headquarters and regional commissions. Efforts to identify policy gaps, as well as ensure that existing policies are updated and aligned with business needs, have been strengthened
50	31/12/2018	The Office of Information and Communications Technology will work to establish and record certifications, noting that the requirements for ICT functions are established as part of a larger human resource framework
55	31/12/2019	The Office is formulating a plan to identify the functions that will require knowledge transfer and their sequence within the broader activities under way, and will identify risks and potential mitigation measures in collaboration with the Umoja project team
79	Ongoing	Efforts are under way to strengthen the visibility of ICT assets globally, supported by business intelligence. The benefits of the intruder detection system are being identified, noting that the financial quantification of intruder detection is subject to a large number of indeterminable factors and variables and therefore cannot be accurately determined. Network segmentation will be included in the appropriate budgetary context and, should resources be made available, will be implemented. Following the finalization of the privacy principles, the Office will contribute to the development of a privacy policy
101	31/12/2020	The Office has been engaged in identifying applications including those that serve similar purposes. It is expected that this effort will continue until the conclusion of the ICT strategy
108	31/12/2020	The Enterprise Portfolio Management Section will monitor through periodic meetings and ensure that timelines are altered when supported by a valid and compelling reason
114	Ongoing	The implementation of United Nations Technology Innovation Labs has been initiated and will be monitored closely to ensure effective and timely implementation

Paragraph	*Target date*	*Comments*
118	Ongoing	The Secretariat will ensure that ICT requirements are reflected in the appropriate budgetary context, in accordance with a long-term plan and in compliance with the ICT strategy
126	Ongoing	The Office continues to identify opportunities where global sourcing is optimal and will work within the Secretariat and the United Nations common system to ensure that global sourcing is implemented and available. The cost benefits arising from the use of global contracts is being monitored
127	31/12/2019	The finalization of contracts depends on several factors, including those that relate to the vendors with whom contracts are established. The Secretariat will make efforts to ensure the timely establishment of contracts; however, it is not in control of the entire process
140	31/12/2018	The Secretariat has established a plan for the replacement of videoconferencing equipment and will submit it in the appropriate budget

II. Implementation of the recommendations contained in the reports of the Board of Auditors for prior periods

The table below provides a summary of the overall situation, as at July 2018, with respect to the 37 recommendations that had been issued by the Board until the end of 2017.

Responsible department	*Total recommendations*	*Implemented*	*Not started*	*Overtaken by events*	*In progress*
United Nations Secretariat under the oversight of the Office of Information and Communications Technology	37	10	1	1	25
Percentage	100.0	27.0	2.7	2.7	67.6

A. First annual progress report of the Board of Auditors on the implementation of the information and communication technology strategy (A/72/151)

Paragraph	*Target date*	*Comments*
21	31/12/2018	The performance measures in the senior managers' compacts are being updated to be more objective and quantifiable. The designation and delegation processes are being aligned with the Secretary-General's proposals related to management reform
33	31/12/2019	Project status reports collected from project/programme managers are reviewed at monthly meetings with the Chief Information Technology Officer. Projects are tracked according to key performance indicators
40	31/12/2020	39 ICT policies, guidelines and technical procedures have been established since the formulation of the ICT strategy. Additional policies are formulated and promulgated as required. Resources for compliance are unavailable, with self-assessment focusing on information security

Paragraph	*Target date*	*Comments*
45	31/12/2020	The Secretariat is assessing the corresponding resource requirements, which will be presented to the General Assembly
50	31/12/2018	An ICT performance management framework has been developed. Resource constraints have hampered efforts to implement the framework across the Secretariat
55	Ongoing	The mandatory information security awareness training is provided to incoming staff on an ongoing basis
60	31/12/2018	The responsibility for the classification of information and data rests with the originators and owners of that information and was therefore assigned to heads of departments and offices in ST/SGB/2007/6. This requirement was reiterated by the Chief Information Technology Officer on 16 September 2016. Offices and departments of the Secretariat are responsible for ensuring compliance with standards and policy related to information security
67	Ongoing	The Senior Emergency Policy Team identified and endorsed the overarching functions that are considered critical to the Organization. The Office has established the United Nations disaster recovery planning ICT technical procedure, which details the methodology for selecting critical applications and for their inclusion in disaster recovery planning. The Team has identified 24 Secretariat applications as critical
77	31/12/2020	The Enterprise Application Centre in New York, in cooperation and coordination with the Department of Public Information and the Department for General Assembly and Conference Management, is working to establish website governance to ensure compliance with five key areas: technology, branding, multilingualism, security and accessibility for persons with disabilities, and to ensure that new public websites meet the organizational standards Designated IT focal points across the Secretariat have been instructed to update their website information and compliance in Unite Apps The Centres also coordinate application development and harmonization
86	31/12/2019	It is important to note that an accurate response requires that all "substantial tickets" are excluded from the first level, as they are outside the scope of Unite Service Desk user support activities. This step has been taken by and falls under the responsibility of the global service delivery model team with the creation of the global shared catalogue of administrative services
92	31/12/2018	The Office, in partnership with the United Nations Institute for Training and Research, is hosting a series of emerging technology education forums for diplomats and plans to offer an advanced technology skills certification course. Pilot projects for Technology Innovation Labs are under way in collaboration with partners and Member States
105	31/12/2019	A contracts management unit has been put in place within the Operations Coordination Section of the Office in support of the administration of contracts pertaining to the Office and the Information and Communications Technology Division of the Department of Field Support. The Office has established several global contracts which are used by ICT offices around the world
106	31/12/2019	A list of ICT contracts was identified globally. Progress has been made in global sourcing, and as a result economies of scales and discounts were achieved on the equipment and services procured

Paragraph	*Target date*	*Comments*
112	31/12/2021	The ICT strategy established a means of implementing ICT programmes and delivering services throughout the Secretariat as follows: • Enterprise Application Centres coordinate and lead the global replacement of legacy applications • Regional Technology Centres oversee Secretariat entities on information security, governance and risk, compliance with ICT policies and the delivery of technological solutions regionally • The Enterprise Network Operations Centre monitors all networks and data centre operations, improving visibility, uptime, performance and security • The Enterprise Data Centres deliver services in the areas of hosting, connectivity and monitoring. Enterprise systems have been strengthened and moved to the Centres • The Unite Service Desks provide 24/7 service from the five hubs in Bangkok, Nairobi, Geneva, New York and Brindisi, Italy

B. Report of the Board of Auditors on progress in the handling of information and communications technology affairs in the Secretariat (A/70/581)

Paragraph	*Target date*	*Comments*
Summary, recommendation (a)	Ongoing	The role and authority of the Chief Information Technology Officer have been addressed in the Secretary-General's bulletin on the organization of the Office of Information and Communications Technology (ST/SGB/2016/11)
Summary, recommendation (b)	Ongoing	Through annual progress reports, the Secretariat continues to assess and refine the timeline for the implementation of the ICT strategy in a dynamic manner, ensuring that the implementation plan remains realistic
Summary, recommendation (c)	Ongoing	A governance structure and appropriate delegations of authority have been established in ST/SGB/2016/11 with an additional 39 policy, guidance and technical procedure documents formulated since the inception of the ICT strategy
Summary, recommendation (d)	Ongoing	Policy compliance as well as goals related to the implementation of the ICT strategy are undertaken through the governance bodies, the Information and Communications Technology Board, the Information and Communications Technology Executive Committee and the senior managers' compacts. The Office currently has no funds to establish a compliance function to examine the area of information security and capacity. However, a self-assessment compliance function has been launched
Summary, recommendation (e)		Implemented
Summary, recommendation (f)	Ongoing	Expected costs and benefits of implementing the revised ICT strategy have been addressed with the results of the study included in A/71/400

Paragraph	*Target date*	*Comments*
Summary, recommendation (g)	Ongoing	Key elements of the ICT strategy as well as challenges and progress are presented at the Information and Communications Technology Executive Committee and the Management Committee. In addition, the implementation of the ICT strategy is included in the senior managers' compacts. Furthermore, presentation on the strategic use of ICT as well as on innovation have been delivered to senior management

C. Report of the Board of Auditors on the handling of information and communications technology affairs in the Secretariat (A/67/651)

Paragraph	*Target date*	*Comments*
20		Implemented
29		Implemented
30		Implemented
31–32	Ongoing	The Office issued guidelines to all ICT offices requesting details regarding their budget and expenditure, to be able to analyse and consolidate the data for the second progress report on the implementation of the ICT strategy. The presentation and execution of the budget remains the responsibility of heads of departments and offices
39	Ongoing	The total cost of ownership is outlined in A/72/397, paragraphs 125–133 and table 6, with regard to maintenance costs for 15 years, as well as in paragraph 42, with regard to the cost of production support. The Umoja support model is structured on three levels to best serve users and is designed to achieve self-sufficiency in each location and provide efficient processes and expertise for the resolution of incidents and the fulfilment of service requests
41	Ongoing	A new ICT strategy (A/69/517) was issued in 2014, and the General Assembly reiterated the importance of senior management engagement. The Administration is updating senior managers' compacts with goals oriented to the implementation of the ICT strategy
50		Implemented
55		Implemented
56		Implemented
68	Ongoing	The governance framework has been strengthened, with emphasis on ensuring effective delegation, clearly defined responsibilities and balancing the needs for central control with operational freedom
76		Overtaken by events
82		Implemented
92		Implemented
100		Implemented
101	Ongoing	An information security road map that transforms initiatives into programmatic activities and addresses additional risks has been developed and provided to the Board of Auditors as supporting documentation